

AMENDMENT TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently Amended) A method for a ~~Wireless Local Area Network (WLAN)~~ user equipment (UE) ~~for selecting to select~~ a mobile communication network to access in a Wireless Local Area Network (WLAN) interworking network, comprising the steps of:

sending, by the UE, an authentication request message to a WLAN Access Network (AN) initiating an authentication procedure after [[the]] a connection between [[a]] the WLAN UE and [[a]] the WLAN Access Network (AN) is established;

receiving, sending by the UE, a User Identity Request message from the WLAN AN;

obtaining, by the UE, information of the WLAN serving the UE;

determining, by the UE, whether the information of the WLAN serving the UE matches information of a WLAN stored in the UE;

on receiving said User Identity Request message, deciding network selection information for connection from the WLAN AN to a home network of the UE to be carried based on information of the WLAN covering the WLAN UE and the WLAN information stored in the WLAN UE, if it is determined that the information of the WLAN serving the UE matches the information of the WLAN stored in the UE; and returning, by the UE, a User Identity Response message carrying said network selection information to said WLAN AN, wherein the User Identity response message carries network selection information, and wherein the network selection information is network selection information corresponding to the matched WLAN, and the network selection information indicates a mobile communication network which the UE wants to access to;

whereby the WLAN AN deciding whether said network selection information in the received message indicates a mobile communication network to which the WLAN AN is able to route an authentication request message if yes, forwarding forwards the authentication request message of said WLAN UE to the mobile communication network indicated in the network selection information, and otherwise, sending a notification signal to said WLAN UE, and directing said WLAN UE to perform subsequent operations.

2. (Currently Amended) The method according to Claim 1, ~~further comprising the step of:~~

wherein if it is determined that the information of the WLAN serving the UE does not match information of the WLAN stored in the UE, the method further comprises:

returning, by the UE, a User Identity Response message to the WLAN AN, wherein the User Identity Response message carries network selection information, and wherein the network selection information is information of a pre-configured mobile communication network with the highest priority;

wherein if the WLAN AN determines that the WLAN AN is able to route the authentication request message, it forwards the authentication request message to the mobile communication network indicated in the received network selection information; or

if the WLAN AN determines that the WLAN AN is not able to route the authentication request message, it sends a notification signal to the UE, wherein the notification signal indicates the UE to perform subsequent operations.

~~determining pre-configuring a mobile communication network with the highest priority to be accessed by said WLAN UE.~~

3. (Currently Amended) The method according to Claim 2, wherein, said ~~WLAN~~ information refers to includes WLAN identity information; ~~and~~
said ~~step of deciding network selection information comprises:~~
~~obtaining the identity information of the current WLAN;~~
~~matching the obtained WLAN identity information and the WLAN identity information stored in said WLAN UE, and~~
~~if the identity information of the current WLAN and the corresponding network selection information is stored in said WLAN UE, regarding the network selection information corresponding to the identity information of current WLAN as the network selection information to be carried; otherwise, said pre-configured mobile communication network with the highest priority will be carried as the network selection information.~~

4. (Currently Amended) The method according to Claim 3, ~~further comprising the steps of:~~
~~judging whether~~ if it is determined that the identity information of the ~~current~~ WLAN serving the UE is not stored in said ~~WLAN~~ UE when the ~~WLAN~~ UE has successfully accessed the mobile communication network indicated in the network selection information, ~~and the~~
method further comprises:

~~if not so stored,~~ storing the identity information of the WLAN serving the UE, ~~and~~
~~storing the information of the mobile communication network~~

wherein ~~being successfully accessed~~ the information of the mobile communication network is used as the network selecting information corresponding to the identity information of the WLAN serving the UE; ~~otherwise, inhibiting storing.~~

5. (Currently amended) The method according to Claim 2, wherein, said pre-configured mobile communication network with the highest priority is ~~[[the]]~~a home network.

6. (Currently Amended) The method according to Claim 3, wherein, said WLAN identity information ~~refers to~~is an Access Point Identity (APID) or a Service Set Identity (SSID); and wherein said Access Point Identity (APID) is a Media Access Control (MAC) address of ~~[[the]]~~an Access Point (AP).

7. (Canceled)

8. (Currently Amended) The method according to Claim ~~[[4]]~~2, ~~further comprising the step of: after storing the WLAN identity information and its corresponding network selection information, wherein the network selection information setting has~~ a valid survival time, ~~for the stored network selection information so as to make the stored contents invalid when the survival time is exceeded, and~~ the method further comprising:

determining whether the valid survival time of the network selection information has exceeded;

and wherein if it is determined that the information of the WLAN serving the UE matches information of the WLAN stored in the UE and that the valid survival time of the stored network selection information has not exceeded, using the network selection information corresponding to the matched WLAN as the network selection information to be carried; or

if it is determined n that the valid survival time of the stored network selection information has exceeded, using the information of a pre-configured mobile communication network with the highest priority as the network selection information to be carried.

9. (Cancelled)

10. (Currently Amended) The method according to Claim 8, ~~further comprising the steps of:~~

when the ~~WLAN~~ UE has successfully accessed the mobile communication network indicated in the network selection information, ~~judging~~ determining whether the ~~WLAN~~ UE has stored the information of the mobile communication network ~~which is currently accessed with success~~;

if the UE has not stored the information of the mobile communication network, ~~there is no such information stored~~, storing the identity information of the WLAN serving the UE and the information of the mobile communication network, wherein ~~together with said information~~ the information of the mobile communication network is used as the network selection information corresponding to the identity information of the ~~current~~ WLAN serving the UE, and resetting the valid survival time of the currently stored network selection information; ~~and/or~~

if the UE has stored the information of the mobile communication network, ~~otherwise, judging~~ determining whether the information of the mobile communication network ~~said WLAN UE has adopted to access~~ is the network selection information corresponding to the identity information of the WLAN serving the UE ~~stored by said WLAN UE~~, ~~and/or~~

if the information of the mobile communication network is not the network selection information corresponding to the identity information of the WLAN serving the UE, ~~the information has been adopted, consuming the valid survival time of the network selection information continuously; and otherwise, resetting said valid survival time of the network selection information of the mobile communication network.~~

11. (Currently Amended) The method according to Claim [[4]]2, further comprising ~~the steps of~~:

setting a valid usage times for the stored network selection information, ~~after storing the WLAN identity information and its corresponding network selection information.~~

12. (Currently Amended) The method according to Claim 11, further comprising ~~the steps of~~:

if the identity information of the ~~current~~ WLAN serving the UE is stored in said ~~WLAN~~ UE, ~~judging~~ determining whether the valid usage times of the stored network selection information corresponding to the identity information of ~~current~~ WLAN serving the UE have been consumed,

if ~~yes~~ the valid usage times of the stored network selection information corresponding to the identity information of WLAN serving the UE have been consumed, ~~regarding~~ using the

pre-configured mobile communication network with the highest priority as the network selection information to be carried; ~~otherwise~~

if the valid usage times of the stored network selection information corresponding to the identity information of WLAN serving the UE have not been consumed, regarding ~~the network selection information~~ the valid usage times of the stored network selection information corresponding to the identity information of WLAN serving the UE as the network selection information to be carried, and the valid usage time being consumed ~~continuously~~.

13. (Currently Amended) The method according to Claim 11, further comprising ~~the steps of~~:

when the ~~WLAN~~ UE has successfully accessed the mobile communication network indicated in the network selection information, ~~judging~~ determining whether the ~~WLAN~~ UE has stored the mobile communication network ~~of the current successful access~~;

~~if there is no such information~~ the UE has not stored the mobile communication network, storing the mobile communication network ~~of the current successful access~~ as the network selection information corresponding to the identity information of the ~~current~~ WLAN serving the UE together with the identity information of the WLAN serving the UE, and resetting the valid usage times of the currently stored network selection information; or

~~and otherwise~~ if the UE has stored the mobile communication network, ~~judging~~ determining whether the information of the mobile communication network is the network selection information corresponding to the identity information of the WLAN serving the UE ~~said WLAN UE has adopted to access the network selection information corresponding to the identity information of current WLAN it stores~~, and

if the information of the mobile communication network is not the network selection information corresponding to the identity information of the WLAN serving the UE ~~it has been adopted, consuming the valid usage times of the network selection information continuously~~; ~~otherwise~~, resetting the valid usage times of the network selection information.

14. (Currently Amended) The method according to Claim 8, further comprising ~~the steps of~~:

deleting the identity information of the WLAN and ~~its~~ corresponding network selection information stored by the ~~WLAN~~ UE, when the valid survival time corresponding to the network selection information is ~~over~~ exceeded.

15. (Currently Amended) The method according to Claim 4, further comprising ~~the steps of~~:

setting a threshold ~~for~~of the amount of the information permitted to be stored in the ~~WLAN-UE~~,

~~judging~~determining whether the number of the identity information of the current WLAN and corresponding network selection information exceeds ~~[[said]]~~the threshold of the amount of information permitted to be stored,

if the number of the identity information of the current WLAN and corresponding network selection information exceeds the threshold~~the amount is exceeded~~, deleting the old information of the current WLAN or corresponding network selected information, and storing the identity information of the WLAN serving the UE and ~~its~~ corresponding network selection information of serving the UE; ~~and otherwise, storing the identity information of the WLAN and its corresponding network selection information.~~

16. (Currently amended) The method according to Claim 1, wherein said network selection information is contained in ~~[[the]]~~a Network Access Identity (NAI).

17. (Currently Amended) The method according to Claim 1, ~~wherein after~~ said ~~step of~~ sending a notification signal to said ~~WLAN-UE~~, the method ~~comprises~~comprising:

re-selecting, by the UE, a mobile communication network, and obtaining the network information corresponding to the ~~selected~~re-selected mobile communication network ~~according to the notification signal~~; and

sending a message carrying the ~~selected~~re-selected information of the new network to the WLAN AN.

18. (Currently Amended) The method according to Claim 17, further comprising ~~the steps of~~:

Waiting, by the WLAN AN, for a response message~~message~~ from said ~~WLAN-UE~~ for a certain time, if no response has been received, sending a Selection Result Request to said ~~WLAN-UE~~.

19. (Cancelled)

20. (Currently Amended) The method according to Claim 1, wherein ~~said step of sending a notification signal is sent~~ to said ~~WLAN-UE~~ from the WLAN AN, ~~comprises~~:

~~Indicating~~the notification signal indicates ~~the WLAN UE~~ that the current selected network is invalid and downloading of the mobile communication network information is needed, and wherein the method further comprises:

~~said WLAN UE~~ determining, by the UE, whether to download the mobile communication network information,

if ~~yes~~the downloading the mobile communication network information is needed, said WLAN UE returning a response, wherein the response indicates of needing to download the mobile communication network information;

~~sending~~whereby the mobile communication network information is sent to said ~~WLAN UE~~ ~~[[on]]~~upon receiving the response;

after receiving the mobile communication network information, re-selecting, by the UE, a mobile communication network ~~on~~ according to receiving the mobile communication network information, and re-sending an Access Authentication Request carrying said re-selected network selection information to the WLAN AN; ~~otherwise, doing nothing or returning response information indicating that no downloading is needed.~~

21-24. (Cancelled)

25. (Currently amended) The method according to Claim 1, wherein, said WLAN interworking network ~~refers to~~ is a 3GPP-WLAN interworking network.

26. (Currently amended) The method according to Claim 1, wherein, said mobile communication network ~~refers to~~ is a public land mobile network (PLMN).

27. (Currently Amended) The method according to Claim 12, further comprising ~~the steps of:~~
deleting the identity information of the WLAN and its corresponding network selection information stored by the ~~WLAN UE~~, when the valid usage times corresponding to the network selection information ~~are~~ have been consumed.

28. (Currently Amended) The method according to Claim 10, further comprising ~~the steps of:~~
setting a threshold ~~for~~ of the amount of the information permitted to be stored in the ~~WLAN UE~~,

~~determining-judging~~ whether the number of the identity information of the current WLAN and its corresponding network selection information exceeds said threshold of the amount of information permitted to be stored,

if the number of the identity information of the current WLAN and corresponding network selection information exceeds the threshold~~the amount is exceeded~~, deleting old information of the current WLAN or corresponding network selected information, and storing the identity information of the WLAN serving the UE and its corresponding network selection information of the WLAN; ~~and otherwise, storing the identity information of the WLAN and its corresponding network selection information.~~

29. (Currently Amended) The method according to Claim 13, further comprising ~~the steps of:~~

setting a threshold for the amount of the information permitted to be stored in the ~~WLAN~~ UE,

~~determining-judging~~ whether the number of the identity information of the current WLAN and its corresponding network selection information exceeds said threshold of the amount of information permitted to be stored,

if the number of the identity information of the current WLAN and corresponding network selection information exceeds the threshold~~the amount is exceeded~~, deleting old information of the current WLAN or corresponding network selected information, and storing the identity information of the WLAN serving the UE and its corresponding network selection information of the WLAN; ~~and otherwise, storing the identity information of the WLAN and its corresponding network selection information.~~

30. (New) A system for selecting a mobile communication network to access in a Wireless Local Area Network (WLAN) interworking network, comprising a user equipment (UE) and a WLAN Access Network (AN),

wherein the UE is configured to:

send an authentication request message to the WLAN AN after a connection between the UE and the WLAN AN is established;

receive a User Identity Request message from the WLAN AN;

obtain information of the WLAN serving the UE;

determine whether the information of the WLAN serving the UE matches information of a WLAN stored in the UE;

if it is determined that the information of the WLAN serving the UE matches the information of the WLAN stored in the UE; return a User Identity Response message to the WLAN AN, wherein the User Identity Response message carries network selection information, and wherein the network selection information is network selection information corresponding to the matched WLAN, and the network selection information indicates a mobile communication network which the UE wants to access to; and

the WLAN AN is configured to:

receive the User Identity Response message;

forward the authentication request message to the mobile communication network indicated in the network selection information.

31. (New) A user equipment (UE) for selecting a mobile communication network to access in a Wireless Local Area Network (WLAN) interworking network, wherein the UE communicates with a WLAN Access Network (AN),

wherein the UE is configured to:

send an authentication request message to the WLAN AN after a connection between the UE and the WLAN AN is established;

receive a User Identity Request message from the WLAN AN;

obtain information of the WLAN serving the UE;

determine whether the information of the WLAN serving the UE matches information of a WLAN stored in the UE;

if it is determined that the information of the WLAN serving the UE matches the information of the WLAN stored in the UE; return a User Identity Response message to the WLAN AN, wherein the User Identity Response message carries network selection information, and wherein the network selection information is network selection information corresponding to the matched WLAN, and the network selection information indicates a mobile communication network which the UE wants to access to;

whereby the WLAN AN forwards the authentication request message to the mobile communication network indicated in the received network selection information.